

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1 1 - 25. (Canceled)

1 26. (Currently amended): A structure comprising an assemblage of separate
2 electronic devices, each electronic device having a first surface and a second surface
3 substantially parallel to said first surface, said electronic device further having a beveled side
4 side surfaces connecting said first surface to said second surface, said first surface having a
5 smaller area than said second surface, said electronic device further having electronic structures
6 formed on said second surface.

1 27. (Previously presented): The structure of claim 26 wherein said electronic
2 device has a length dimension of about 50 microns or less.

1 28. (Previously presented): The structure of claim 26 wherein said electronic
2 device has a trapezoidal cross-section.

1 29. (Previously presented): The structure of claim 26 wherein said side
2 surfaces are etched surfaces.

1 30. (Previously presented): The structure of claim 26 wherein said electronic
2 device is a multilayered structure.

1 31. (Previously presented): The structure of claim 30 wherein said
2 multilayered structure includes a metal layer.

1 32. (Previously presented): The structure of claim 30 wherein said
2 multilayered structure includes an insulator layer.

1 33. (Previously presented): The structure of claim 30 wherein said
2 multilayered structure includes a layer of silicon dioxide.

1 34. (Previously presented): The structure of claim 30 wherein said
2 multilayered structure includes a layer of silicon nitride.

1 35. (Previously presented): The structure of claim 26 wherein said electronic
2 device comprises material is selected from the group consisting of silicon, gallium arsenide,
3 aluminum gallium arsenide, diamond, and germanium.

1 36. (Previously presented): The structure of claim 26 wherein said electronic
2 device comprises a group III-V compound.

1 37. (Previously presented): The structure of claim 26 wherein said electronic
2 device comprises a group II-VI compound.

1 38. (Previously presented): The structure of claim 26 wherein the perimeter of
2 said first surface has a rectangular shape, an octagonal shape, or a circular shape.

1 39. (Previously presented): An electronic device comprising semiconductor
2 material and having a tapered profile, said electronic device having a length dimension less than
3 or equal to 1 mm in measure, said electronic device being separated from a substrate.

1 40. (Previously presented): The electronic device of claim 39 further having a
2 first surface and a second surface substantially parallel to said first surface.

1 41. (Previously presented): The electronic device of claim 40 wherein the
2 perimeter of said first surface has a rectangular shape, an octagonal shape, or a circular shape.

1 42. (Previously presented): The electronic device of claim 39 wherein said
2 semiconductor material is a multilayered structure.

1 43. (Previously presented): The electronic device of claim 39 wherein said
2 semiconductor material is a group III-V compound.

1 44. (Previously presented): The electronic device of claim 43 wherein said
2 semiconductor material is gallium arsenide.

1 45. (Previously presented): The electronic device of claim 39 wherein said
2 semiconductor material is a light-emitting diode.

1 46. (Previously presented): The electronic device of claim 45 wherein said
2 semiconductor material is a gallium arsenide light-emitting diode.

1 47. (Currently amended): The electronic device of claim 39 wherein said
2 semiconductor material is a laser-diode.

1 48. (Previously presented): The electronic device of claim 39 wherein a cross-
2 section thereof shows one of a cylindrical shape, a rectangular shape, a square shape, a
3 hexagonal shape, a T-shape, and a kidney shape.

1 49. (Currently amended): A shaped block of material adapted for being
2 received in a recess of a substrate, said shaped block of material having sloped sides and a top
3 surface connected to a bottom surface by said sloped sides, said top surface being substantially
4 parallel to said bottom surface, said top surface being non-congruent with said bottom surface, a
5 larger of said top surface and bottom surface having formed thereon an electronic device.

1 50. (Previously presented): The shaped block of claim 49 wherein said block
2 of material has a length measurement less than or equal to 50 microns.

1 51. (Previously presented): The shaped block of claim 49 wherein said sloped
2 sides are etched sides.

1 52. (Currently amended): The shaped block of claim 49 wherein said sloped
2 sides have a slope ~~greater than about twenty degrees~~between about 40° and 60° relative to a line
3 normal to said top surface.

1 53. (Previously presented): The shaped block of claim 49 wherein said
2 material comprises a multilayered structure.

1 54. (Previously presented): The shaped block of claim 49 wherein said
2 material is selected from the group consisting of silicon, gallium arsenide, aluminum gallium
3 arsenide, diamond, and germanium.

1 55. (Previously presented): The shaped block of claim 49 wherein said
2 material comprises a group III - V compound.

1 56. (Previously presented): The shaped block of claim 49 wherein said
2 material comprises a group II - VI compound.

 57. (Canceled)

1 58. (Previously presented): The shaped block of claim 49 wherein the
2 perimeter of said first surface has a rectangular shape, an octagonal shape, or a circular shape.

1 59. (Currently amended): A shaped functional block comprising a
2 semiconductor material and having a shape adapted for self-alignment within a shaped recess
3 formed through a substrate surface, said block having a first surface and a second surface and
4 having etched sides which are sloped such that said block fits into said shaped opening only in an
5 orientation where said first surface is exposed through said substrate surface, said first surface
6 connected to said second surface only by said etched sides, said first surface being larger in area
7 than said second surface and having electronic structures formed thereon.

1 60. (Previously presented): The functional block of claim 59 wherein said first
2 surface includes a conductive contact disposed thereon.

1 61. (Previously presented): The functional block of claim 59 wherein said first
2 surface has an area smaller than said second surface.

1 62. (Previously presented): The functional block of claim 61 wherein said first
2 surface has a circular perimeter, a rectilinear perimeter, or an octagonal perimeter.

1 63. (Previously presented): The functional block of claim 59 having a
2 maximum length dimension of about 1 mm or less.

1 64. (Previously presented): The functional block of claim 59 further
2 comprising a multilayered structure.

1 65. (Previously presented): The functional block of claim 64 wherein said
2 multilayered structure includes a metal layer.

1 66. (Previously presented): The functional block of claim 64 wherein said
2 multilayered structure includes an insulator layer.

1 67. (Previously presented): The functional block of claim 64 wherein said
2 multilayered structure includes a layer of silicon dioxide.

1 68. (Previously presented): The functional block of claim 64 wherein said
2 multilayered structure includes a layer of silicon nitride.

1 69. (Previously presented): The functional block of claim 59 being a light-
2 emitting diode.

1 70. (Currently amended): The functional block of claim 59 being a laser
2 diode.

71. (Canceled)

1 72. (Currently amended): A semiconductor microstructure comprising a
2 shaped block having a first surface substantially parallel to a second surface, said first surface
3 having an associated first area, said second surface having an associated second area, said first
4 area being larger than said second area, an edge that is adjacent both said first surface and said
5 second surface being sloped, said first surface having formed thereon electronic structures, said
6 block having a maximum length dimension of about 1 mm or less in measure.

1 73. (Previously presented): The semiconductor microstructure of claim 72
2 wherein said shaped block comprises material selected from the group consisting of silicon,
3 gallium arsenide, aluminum gallium arsenide, diamond, and germanium.

1 74. (Previously presented): The semiconductor microstructure of claim 72
2 wherein said shaped block comprises a group III-V compound.

1 75. (Previously presented): The semiconductor microstructure of claim 72
2 wherein said shaped block comprises a group II-VI compound.

1 76. (Previously presented): The semiconductor microstructure of claim 72
2 wherein said shaped block is a multilayered structure.

1 77. (Previously presented): The semiconductor microstructure of claim 76
2 wherein said multilayered structure constitutes a light-emitting diode.

1 78. (Previously presented): The semiconductor microstructure of claim 77
2 wherein said multilayered structure includes gallium arsenide.

1 79. (Currently amended): A portion of an integrated circuit device comprising
2 a shaped functional block, said functional block comprising a semiconductor material and having
3 a length dimension less than or equal to 1 mm in measure, said functional block having a top
4 surface, a bottom surface that is smaller than said top surface, and etched sides that connect said

5 top surface with said bottom surface, said top surface having formed thereon an electronic
6 device.

1 80. (Previously presented): The portion of an integrated circuit device of claim
2 79 wherein said semiconductor material is a multilayered structure.

1 81. (Previously presented): The portion of an integrated circuit device of claim
2 79 wherein said semiconductor material is selected from the group consisting of silicon, gallium
3 arsenide, aluminum gallium arsenide, diamond, and germanium.

1 82. (Previously presented): The portion of an integrated circuit device of claim
2 79 wherein said semiconductor material is a group III-V compound.

1 83. (Previously presented): The portion of an integrated circuit device of claim
2 79 wherein said semiconductor material is a group II-VI compound.

1 84. (Previously presented): The portion of an integrated circuit device of claim
2 79 wherein said semiconductor material constitutes a light-emitting diode.

1 85. (Previously presented): The portion of an integrated circuit device of claim
2 84 wherein said light-emitting diode is a gallium arsenide light-emitting diode.

1 86. (Currently amended): An electronic chip comprising a shaped block of
2 material separated from a substrate and having a first surface and a second surface substantially
3 parallel to said first surface, said block further having etched side surfaces extending from said
4 first surface to said second surface, said first surface having an areal measurement ~~different~~
5 larger than an areal measurement of said second surface, said first surface having a conductive
6 contact disposed thereon.

1 87. (Previously presented): The electronic chip of claim 86 wherein said block
2 of material has a width of about 50 microns or less and a length of about 50 microns or less.

1 88. (Currently amended): The electronic chip of claim 86 wherein said etched
2 side surfaces have a slope relative to a line normal to said first surface ~~of greater than about~~
3 ~~twenty degrees~~between about 40° and 60°.

1 89. (Previously presented): The electronic chip of claim 86 wherein said
2 material comprises a multilayered structure including one or more layers of semiconductor
3 material.

90. (Canceled)

1 91. (Previously presented): The electronic chip of claim 89 wherein said
2 multilayered structure includes a p-type gallium arsenide layer, an n-type gallium arsenide layer,
3 and a eutectic layer.

92. (Canceled)

1 93. (Previously presented): The electronic chip of claim 86 wherein said
2 material is semiconductor material.

1 94. (Previously presented): The electronic chip of claim 86 wherein said
2 electronic chip is a light-emitting diode.

1 95. (Previously presented): The electronic chip of claim 86 wherein said
2 electronic chip is a gallium arsenide resonant tunneling diode.

1 96. (Previously presented): The electronic chip of claim 86 wherein said
2 electronic chip is a gallium arsenide diode.

1 97. (Previously presented): The electronic chip of claim 86 wherein said
2 electronic chip is a gallium arsenide microwave device.

1 98. (Previously presented): The electronic chip of claim 86 wherein a cross-
2 section thereof shows one of a cylindrical shape, a rectangular shape, a square shape, a
3 hexagonal shape, a T-shape, and a kidney shape.

1 99. (Currently amended): An electronic chip comprising a shaped functional
2 block including a semiconductor material, said functional block having tapered sides ~~with~~
3 connecting a top surface and to a bottom surface smaller than said top surface, said top surface
4 having formed thereon at least one electronic device, said functional block further having a
5 length measurement less than or equal to 1 mm, a perimeter of said top surface having a
6 rectilinear shape, a circular shape, or an octagonal shape.

1 100. (Previously presented): The electronic chip of claim 99 wherein said top
2 surface is substantially parallel to said bottom surface.

1 101. (Previously presented): The electronic chip of claim 99 further including a
2 conductive contact disposed atop either or both said top surface and said bottom surface.

1 102. (Previously presented): The electronic chip of claim 99 wherein said
2 semiconductor material is a multilayered structure.

1 103. (Previously presented): The electronic chip of claim 102 wherein said
2 multilayered structure constitutes a light-emitting diode.

1 104. (Currently amended): An electronic component separated from a first
2 substrate comprising:
3 a first surface;
4 a conductive contact disposed atop said first surface;
5 a second surface in substantially parallel relation to said first surface and having a
6 smaller area than said first surface; and
7 etched surfaces connecting said first surface to said second surface,

8 said etched surfaces being tapered to define at least a beveled edge adjacent both
9 said first surface and said second surface,

10 wherein said electronic component is adapted for self-alignment within a shaped
11 opening through a surface of a second substrate.

1 105. (Currently amended): The electronic component of claim 104 ~~wherein said~~
2 ~~amount of semiconductor material has~~further having a maximum length measurement of about
3 50 microns or less.

1 106. (Previously presented): The electronic component of claim 104 wherein
2 said etched surfaces are formed by a wet etch process.

1 107. (Previously presented): The electronic component of claim 104 wherein
2 said etched surfaces are formed by a mask edge.

1 108. (Previously presented): The electronic component of claim 104 wherein
2 said etched surfaces are formed by a reactive ion etch process.

1 109. (Previously presented): The electronic component of claim 104 wherein
2 said etched surfaces are formed by an ion milling process.

1 110. (Previously presented): The electronic component of claim 104 being a
2 light-emitting diode.

1 111. (Currently amended): A light-emitting diode (LED) comprising a shaped
2 semiconductor block having tapered sides, said semiconductor block comprising a first surface
3 and a second surface in substantially parallel relation to said first surface, said tapered sides
4 defining at least a beveled edge adjacent ~~at least one of both~~ said first and second surfaces, said
5 first surface larger in area than said second surface, said first surface having formed thereon
6 electronic structure for producing light.

1 112. (Previously presented): The LED of claim 111 wherein said
2 semiconductor block has a length dimension less than or equal to 50 microns in measure.

1 113. (Previously presented): The LED of claim 111 wherein said tapered sides
2 are etched sides.

1 114. (Previously presented): The LED of claim 111 incorporated in an active
2 display.

1 115. (Previously presented): The LED of claim 111 wherein said
2 semiconductor block is a multilayered structure.

1 116. (Previously presented): The LED of claim 115 wherein said multilayered
2 structure includes gallium arsenide.

1 117. (Previously presented): The LED of claim 115 wherein said multilayered
2 structure includes a group III-V compound.

1 118. (Currently amended): A light-emitting diode (LED) comprising an amount
2 of semiconductor material, said semiconductor material having a first surface and a second
3 surface smaller than said first surface, said semiconductor material having non-parallel side
4 surfaces connecting said first surface to said second surface, said LED having a length dimension
5 less than or equal to 1 mm, said first surface having formed thereon electronic structures
6 configured to produce light.

1 119. (Previously presented): The LED of claim 118 wherein said first surface is
2 in substantially parallel relation to said second surface.

1 120. (Previously presented): The LED of claim 118 wherein said
2 semiconductor material includes a group III-V compound.

1 121. (Previously presented): The LED of claim 120 wherein said
2 semiconductor material includes gallium arsenide.

1 122. (Previously presented): The LED of claim 118 wherein the perimeter of
2 said first surface has a rectangular shape, an octagonal shape, or a circular shape.

1 123. (Currently amended): A light-emitting diode (LED) comprising a block of
2 semiconductor material including gallium arsenide, said block having a top surface and a bottom
3 surface smaller in area than said top surface and connected to said top surface by sloped surfaces,
4 ~~said top and bottom surfaces having different areal measurements~~, said block having a length
5 measurement of about 1 mm or less, said top surface having electronic layers formed thereon to
6 produce light.

1 124. (Previously presented): The LED of claim 123 wherein said sloped
2 surfaces are etched surfaces.

1 125. (Previously presented): The LED of claim 124 wherein said etched
2 surfaces are formed by a wet etch process.

1 126. (Previously presented): The LED of claim 124 wherein said etched
2 surfaces are formed by a mask edge.

1 127. (Previously presented): The LED of claim 124 wherein said etched
2 surfaces are formed by a reactive ion etch process.

1 128. (Previously presented): The LED of claim 124 wherein said etched
2 surfaces are formed by an ion milling process.

1 129. (Previously presented): The LED of claim 123 wherein the perimeter of
2 said top surface has a rectangular shape, an octagonal shape, or a circular shape.

1 130. (Currently amended): A laser ~~diode~~ comprising a shaped block of
2 semiconductor material having a length dimension of about 1 mm or less in measure, said block
3 of semiconductor having a tapered edge.

1 131. (Currently amended): The laser ~~diode~~ of claim 130 wherein said
2 semiconductor material comprises a group III-V compound.

1 132. (Currently amended): The laser ~~diode~~ of claim 131 wherein said
2 semiconductor material comprises gallium arsenide.

1 133. (Currently amended): The laser ~~diode~~ of claim 130 wherein said block
2 comprises first and second surfaces in parallel relation and etched side surfaces connecting said
3 first and second surfaces, said first surface having an area different than an area of said second
4 surface.

1 134. (Currently amended): The laser ~~diode~~ of claim 130 incorporated in an
2 optical data channel.

135 - 139. (Canceled)

1 140. (Previously presented): The structure of claim 26 wherein said electronic
2 device has a length dimension of about 1 mm or less.

1 141. (Previously presented): The structure of claim 26 wherein said electronic
2 device has a length dimension of about 500 microns or less.

1 142. (Previously presented): The structure of claim 26 wherein said electronic
2 device has an edge portion that is beveled.

1 143. (Previously presented): The structure of claim 26 wherein said electronic
2 device is shaped like a truncated pyramid.

1 144. (Previously presented): The electronic device of claim 39 wherein said
2 length dimension less than or equal to 500 microns.

1 145. (Previously presented): The electronic device of claim 39 wherein said
2 length dimension is less than or equal to 50 microns.

1 146. (Previously presented): The electronic device of claim 39 wherein said
2 profile has a trapezoidal shape.

1 147. (Previously presented): The electronic device of claim 39 wherein said
2 profile shows at least a partially beveled edge.

1 148. (Previously presented): The electronic device of claim 39 having one of a
2 pyramid shape and a truncated pyramid shape.

1 149. (Previously presented): The shaped block of claim 49 wherein said block
2 of material has a length measurement less than or equal to 500 microns.

1 150. (Previously presented): The shaped block of claim 49 wherein said block
2 of material has a length measurement less than or equal to 1 mm.

1 151. (Previously presented): The shaped block of claim 49 wherein said sloped
2 sides have a trapezoidal profile.

1 152. (Previously presented): The shaped block of claim 49 wherein said sloped
2 sides define a portion of a beveled edge.

1 153. (Previously presented): The shaped block of claim 49 wherein said shaped
2 block has a shape of a truncated pyramid.

1 154. (Previously presented): The functional block of claim 59 having a
2 maximum length dimension of about 500 micron or less.

1 155. (Previously presented): The functional block of claim 59 having a
2 maximum length dimension of about 50 micron or less.

1 156. (Previously presented): The functional block of claim 59 wherein said
2 etched sides are characterized by having a trapezoidal profile.

1 157. (Previously presented): The functional block of claim 59 wherein said
2 etched sides form a beveled edge adjacent said first surface.

1 158. (Previously presented): The functional block of claim 59 having a shape of
2 a truncated pyramid.

1 159. (Previously presented): The semiconductor microstructure of claim 72
2 wherein said length dimension further is about 500 microns or less in measure.

1 160. (Previously presented): The semiconductor microstructure of claim 159
2 wherein said length dimension further is about 50 microns or less in measure.

1 161. (Previously presented): The semiconductor microstructure of claim 72
2 wherein said edge has a trapezoidal profile.

1 162. (Previously presented): The semiconductor microstructure of claim 72
2 wherein said edge is beveled.

1 163. (Previously presented): The semiconductor microstructure of claim 72
2 wherein said shaped block has a truncated pyramid appearance.

1 164. (Previously presented): The portion of an integrated circuit device of claim
2 79 wherein said length dimension further is less than or equal to 500 microns in measure.

1 165. (Previously presented): The portion of an integrated circuit device of claim
2 164 wherein said length dimension further is less than or equal to 50 microns in measure.

1 166. (Previously presented): The portion of an integrated circuit device of claim
2 79 wherein said etched sides have a form a trapezoidal profile.

1 167. (Previously presented): The portion of an integrated circuit device of claim
2 79 wherein said functional block further comprises a first major surface and a second major
3 surface connected to said first major surface by said etched sides, a portion of said etched sides
4 adjacent to said first major surface forming a beveled edge.

1 168. (Previously presented): The portion of an integrated circuit device of claim
2 79 wherein said functional block has a shape of a truncated pyramid.

1 169. (Previously presented): The electronic chip of claim 86 wherein said block
2 of material has a width of about 1 mm or less and a length of about 1 mm or less.

1 170. (Previously presented): The electronic chip of claim 86 wherein said block
2 of material has a width of about 500 microns or less and a length of about 500 microns or less.

1 171. (Previously presented): The electronic chip of claim 86 wherein said
2 shaped block has an outwardly sloped profile.

1 172. (Previously presented): The electronic chip of claim 86 wherein said
2 shaped block has an inwardly sloped profile.

1 173. (Previously presented): The electronic chip of claim 86 wherein a profile
2 of said shaped block resembles a trapezoid.

1 174. (Previously presented): The electronic chip of claim 86 wherein said
2 etched side surfaces define a beveled edge adjacent said first surface.

1 175. (Previously presented): The electronic chip of claim 86 wherein said
2 shaped block is one of a pyramid shape and a truncated pyramid shape.

1 176. (Previously presented): The electronic chip of claim 99 wherein said
2 length measurement further is less than or equal to 500 microns.

1 177. (Previously presented): The electronic chip of claim 176 wherein said
2 length measurement further is less than or equal to 50 microns.

1 178. (Previously presented): The electronic chip of claim 99 wherein said
2 tapered sides define at least a beveled edge adjacent said top surface.

1 179. (Currently amended): The electronic component of claim 104 ~~wherein said~~
2 ~~amount of semiconductor material has~~further having a maximum length measurement of about 1
3 mm or less.

1 180. (Currently amended): The electronic component of claim 104 ~~wherein said~~
2 ~~amount of semiconductor material has~~further having a maximum length measurement of about
3 500 microns or less.

1 181. (Previously presented): The LED of claim 111 wherein said
2 semiconductor block has a length dimension less than or equal to 1 mm in measure.

1 182. (Previously presented): The LED of claim 111 wherein said
2 semiconductor block has a length dimension less than or equal to 500 microns in measure.

1 183. (Previously presented): The LED of claim 118 wherein said length
2 dimension further is less than or equal to 500 microns.

1 184. (Previously presented): The LED of claim 183 wherein said length
2 dimension further is less than or equal to 50 microns.

1 185. (Previously presented): The LED of claim 118 further comprising a
2 beveled edge formed adjacent one of said first and second surfaces.

1 186. (Previously presented): The LED of claim 123 wherein said length
2 measurement further is about 500 microns or less.

1 187. (Previously presented): The LED of claim 186 wherein said length
2 measurement further is about 50 microns or less.

1 188. (Previously presented): The LED of claim 124 wherein said sloped
2 surfaces define a beveled edge adjacent one of said top and bottom surfaces.

1 189. (Currently amended): A shaped block of semiconductor material having
2 tapered sides, said block of material comprising a first surface and a second surface in
3 substantially parallel relation to said first surface and smaller in area than said first surface, said
4 tapered sides defining a beveled edge adjacent ~~at least one~~both of said first and second surfaces,
5 said first surface having formed thereon an electronic device.

1 190. (Previously presented): The shaped block of claim 189 having a maximum
2 length dimension less than or equal to 1 mm in measure.

1 191. (Previously presented): The shaped block of claim 189 having a maximum
2 length dimension less than or equal to 500 microns in measure.

1 192. (Previously presented): The shaped block of claim 189 having a maximum
2 length dimension less than or equal to 50 microns in measure.